

1 CLAIMS:

5 1. An encapsulated optoelectronic device whose surface is coated with a material comprised of a dielectric constant similar to the encapsulant, the thickness of the material designed to make the optoelectronic properties of the optoelectronic device the same both pre and post encapsulation.

10 2. A method of fabricating an encapsulated VCSEL having controlled characteristics, the method comprising the steps of:

fabricating the initial optoelectronic device;

10 measuring a characteristic of the device;

determining the thickness of a phase matching layer needed to maintain the characteristic substantially the same after encapsulation;

15 depositing the phase matching layer with the desired thickness; and

completing the processing, packaging and encapsulation of the device.

20 3. A method of fabricating an encapsulated VCSEL having a controlled slope efficiency, the method comprising the steps of:

fabricating the initial VCSEL;

20 measuring the slope efficiency of the VCSEL;

determining the thicknesses of a tuning layer and a phase matching layer calculated to achieve the desired slope efficiency;

25 depositing the tuning layer and phase matching layer having the determined thicknesses; and

encapsulating the VCSEL.

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